Hardware & Cloud Resource Management

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Linux Foundation, Release Engineering
Presentation Overview, Topics

› Introduction
› Release Engineering Team
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› Existing Community Labs (Or so we thought)
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Matt

Bengt

Matt, Bengt, Anil
Release Engineering Team

Remit, Responsibilities
Concerned with the following aspects of software production:

Identifiability, Reproducibility, Consistency, Agility

Our portfolio:
Hardware
  › On premise hardware, data centres (Portland, VEXXHOST)
  › Cloud infrastructure (AWS, GCP, Azure)
  › Lab environments/access/resources

Software
  › Software platforms/tooling, Jenkins, GERRIT, Nexus
  › Internally developed tooling, e.g. LFX, common-packer, etc.
<table>
<thead>
<tr>
<th>Project</th>
<th>ORM (format: [variant] + [GittHub / Miro])</th>
<th>CI Platform</th>
<th>Jira</th>
<th>Artifacts Repository</th>
<th>Build Logs</th>
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**THE LINUX FOUNDATION**
Observations, Industry Trends, Strategies

Strategy, Direction

› Broad discussion of industry trends
  › Increased use of public cloud, infrastructure as code, automation
  › Modern CI/CD tooling, e.g. GitLab, GitHub
  › Common challenges related to infrastructure management
    › Governance, finding consensus, agreeing strategy

Outline of current RelEng projects
Potential alignment with industry trends
Possible future changes to direction of travel
Existing Community Labs (or so we thought)

ONAP*

- Orange OpenLab (Jan 9, 2021)
- Azure Lab
- Intel ONAP Integration Lab (Apr. 1, 2022)
- China Mobile ONAP Lab
- Reliance Jio R&D Labs
- China Telecom ONAP Lab
- TLAB (AT&T)
- WINLAB
- Auto Lab
- VMware OpenLab (VMware)
- ONAP Lab of OVP (Lenovo Labs)
- IoL-UNH ONAP Lab

Fd.io*

- AWS
- Vexxhost

Anuket*

- Intel
- IoL-UNH-LaaS

5G SBP is using UNH (New Hampshire), Kaloom (Montreal), and WaveLabs (Hyderabad) labs. All are accessible upon request.


Status:
- Available
- Unsure
- Decommissioned (Date)
SubCommittee for Labs

ONAP
› Community had a lab committee
https://wiki.onap.org/x/4jZk
› Dormant since 2019 June

LFN TAC
› Had an infrastructure committee
https://wiki.lfnetworking.org/x/_QKh
› Wasn’t specifically lab focused
› Dormant since 2019 November

We really this to be active again...
Recommendation:
Allocate an active representative to coordinate with Anuket for lab utilizations, this resource also will promote the how to labs within their community

LFN Level Committee
Division of Responsibilities

**LF Responsibilities**
- Pay the bills
- Facilitate communications

**Community Responsibilities**
- Daily Tasks
- Configuration
- Booking
- Developing new labs
Lessons Learned

Potential causes of unnecessarily high infrastructure costs

› Poorly optimized hardware selection, higher specification than required
› Hardware utilization not optimally managed by software stack/tooling
› Poor lifecycle management, governance
› Unreliable infrastructure, unnecessary hardware redundancy
› Poor utilization, supplier/vendor selection

Lower utilizations could be due to:

› Poor governance, management overhead, political considerations
› Lack of communication, documentation or information sharing
› Platforms/tooling unsuitable for tasks, poor reliability, scheduling conflicts

Conclusion

*Shared infrastructure, tooling and knowledge can reduce costs, improve productivity and potentially increase the effectiveness of governance/oversight*
Lab Recommendations

› Use IaaS (Anuket) for new labs

*Always clean setup, two week default window/allocation, can request longer*

https://labs.lfnetworking.org/

› Transition to CI automation as much as possible

*OpenStack provides for dynamic K8S pods attached to Jenkins (see ODL)*

› For ODL K8 jobs:

https://github.com/opendaylight/relenl-builder/blob/master/jjb/packaging/openstack-k8s-template.yaml
Summary

What LF will do:
› Pay the cost of acquiring H/W
› Strongly recommend LAAS service

What LF will NOT do:
(Community Responsibilities)
› Daily tasks
› Configuration
› Coordinate usage

Recommendation
› Allocate an active representative to coordinate with Anuket for lab utilizations, this resource also will promote the how to labs within their community
› LFN Level Committee
How to contact RELENG

› JIRA Service Desk
  › Use the portal for raising requests (issue tracking/logging)
  › Location: http://support.linuxfoundation.org/
  › Other release engineers have all history at hand
  › Will not be forgotten, even if sometimes it takes a bit of time to fix the issue

› Slack Channel
  › https://join.slack.com/t/onappproject/shared_invite/zt-1alh2xpo6-Rk2eUQljTrVcP4I8kl59Rg
  › Only informal communications between community and Releng
  › ONAP releng resources hang out on the slack channel, and will reply if available
  › Releng will 99% of the time ask for a JIRA ticket to be raised.